

## WHAT IS CLAIMED IS:

1. A method of optimally adjusting an imaging process parameter in the preparation of a lithographic printing surface, said method comprising the steps of:
  - a) imaging a test pattern on a lithographic printing precursor to create by means of said imaging an imaged lithographic printing precursor using at least one write radiation beam;
  - b) converting said imaged lithographic printing precursor into said lithographic printing surface;
  - c) reading back said test pattern from said lithographic printing surface using a radiation source impinging on said test pattern and a radiation detector disposed to measure the reflected radiation from said test pattern and
  - d) analysing said reflected radiation to determine optimal adjustment for said imaging process parameter.
2. The method of claim 1 wherein said imaging process parameter is exposure level.
3. The method of claim 1 wherein said imaging process parameter is used in determining the focusing of the write radiation source onto the surface of said lithographic printing precursor.

4. The method of claim 1 wherein:

- a) said imaging is done using a plurality of write radiation beams;
- b) said imaging process parameter is the relative exposure of said plurality of write radiation beams and
- c) each individual beam of said plurality of write radiation beams is adjusted to impart a substantially equal exposure to said lithographic printing precursor.

5. The method of claim 1 wherein said test pattern is a solid pattern imaged with all of said at least one write radiation beams switched on.

6. The method of claim 1 wherein said test pattern is a pattern of imaged and non-imaged areas varying in a known manner.

7. The method of claim 1 wherein said radiation source is a laser source.

8. The method of claim 7 wherein said laser source is an auxiliary laser source.

9. The method of claim 7 wherein said laser source is an infrared laser.

10. The method of claim 7 wherein said laser source is an auxiliary laser source also operative in a system for controlling the focus of said at least one write radiation beam.

11. The method of claim 1 wherein said radiation source is also used to perform said imaging.
12. The method of claim 1 wherein said radiation detector is a photosensitive detector.
13. The method of claim 1 wherein said radiation detector is an infrared detector.
14. The method of claim 1 wherein said radiation detector is also operative in a system for controlling the focus of said at least one write radiation beam.
15. The method of claim 1 wherein said analysing step comprises performing a mathematical curve fit to the measurements of said reflected radiation.
16. The method of claim 1 wherein said converting comprises passing said lithographic printing precursor through a processing line.
17. The method of claim 1 wherein said converting is done simultaneously with said imaging step.
18. The method of claim 1 wherein said converting comprises removing debris generated by said imaging while said imaging of said lithographic printing precursor is in progress.

19. A method of calibrating a system for imaging a lithographic printing precursor comprising the steps of:

- a) forming a test pattern on said lithographic printing precursor;
- b) converting said lithographic printing precursor into a lithographic printing surface;
- c) measuring the reflectivity of said test pattern on said lithographic printing surface and
- d) adjusting the calibration of said system based on the measured reflectivity;

wherein the formation of said test pattern and the measurement of said reflectivity is performed using the same imaging system.

20. A method of calibrating imaging process parameters in a direct on-press imaging system comprising the steps of:

- a) forming a test pattern on a lithographic printing precursor;
- b) converting said lithographic printing precursor into a lithographic printing surface;
- c) measuring the reflectivity of said test pattern on said lithographic printing surface and
- d) adjusting the calibration of said imaging system based on the measured reflectivity.

21. The method of claim 20 wherein said converting step is accomplished by running the press for sufficient printing cycles after said imaging step to perform the conversion of said lithographic printing precursor into said lithographic printing surface.
22. The method of claim 20 wherein said lithographic printing precursor is prepared by applying the imageable coating directly to the press cylinder.
23. The method of claim 22 wherein said applying comprises spraying a substantially liquid coating directly onto the press cylinder.
24. An apparatus for generating an optimally imaged lithographic printing surface comprising:
- a) means for imaging a test pattern on a lithographic printing precursor and converting said lithographic printing precursor into a lithographic printing surface;
  - b) a radiation source disposed so as to direct its radiation onto the imaged test pattern;
  - c) a radiation detector disposed so as to receive reflected radiation from said imaged test pattern and
  - d) means of processing the signals corresponding to said reflected radiation to determine optimal adjustment of the imaging parameters of said apparatus.